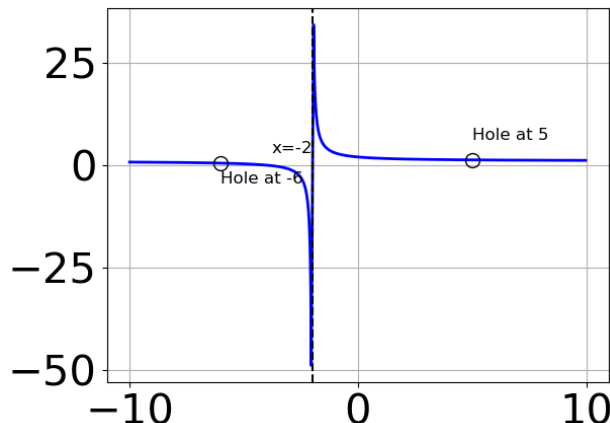1. Which of the following functions *could* be the graph below?

A. $f(x) = \dfrac{x^3 - 5.0x^2 - 26.0x + 120.0}{x^3 - 3.0x^2 - 28.0x + 60.0}$

B. $f(x) = \dfrac{x^3 + 15.0x^2 + 72.0x + 112.0}{x^3 + 3.0x^2 - 28.0x - 60.0}$

C. $f(x) = \dfrac{x^3 + 5.0x^2 - 26.0x - 120.0}{x^3 + 3.0x^2 - 28.0x - 60.0}$

D. $f(x) = \dfrac{x^3 - 6.0x^2 + 32.0}{x^3 - 3.0x^2 - 28.0x + 60.0}$

E. None of the above are possible equations for the graph.

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2. Determine the horizontal and/or oblique asymptotes in the rational function below.

$$f(x) = \frac{12x^3 - 11x^2 - 45x + 50}{3x^2 - 14x + 15}$$

A. Horizontal Asymptote of $y = 3.0$ and Oblique Asymptote of $y = 4x + 15$

B. Horizontal Asymptote at $y = 3.0$

C. Horizontal Asymptote of $y = 4.0$ and Oblique Asymptote of $y = 4x + 15$

D. Horizontal Asymptote of $y = 4.0$

E. Oblique Asymptote of $y = 4x + 15$.

3. Determine the vertical asymptotes and holes in the rational function below.

$$f(x) = \frac{6x^3 + 7x^2 - 56x + 48}{12x^2 - 25x + 12}$$

A. Vertical Asymptote of $x = 0.5$ and hole at $x = 1.333$

B. Vertical Asymptotes of $x = 0.75$ and $x = 1.5$ with a hole at $x = 1.333$

C. Vertical Asymptotes of $x = 0.75$ and $x = 1.333$ with no holes.

D. Vertical Asymptote of $x = 0.75$ and hole at $x = 1.333$

E. Holes at $x = 0.75$ and $x = 1.333$ with no vertical asymptotes.

4. Determine the horizontal and/or oblique asymptotes in the rational function below.

$$f(x) = \frac{6x^2 - 17x + 10}{24x^3 - 38x^2 - 45x + 50}$$

A. Horizontal Asymptote of $y = 0.250$ and Oblique Asymptote of $y = 4x + 5$

B. Horizontal Asymptote of $y = 0.250$

C. Oblique Asymptote of $y = 4x + 5$.

D. Horizontal Asymptote at $y = 2.000$

E. Horizontal Asymptote of $y = 0$

5. Which of the following functions *could* be the graph below?
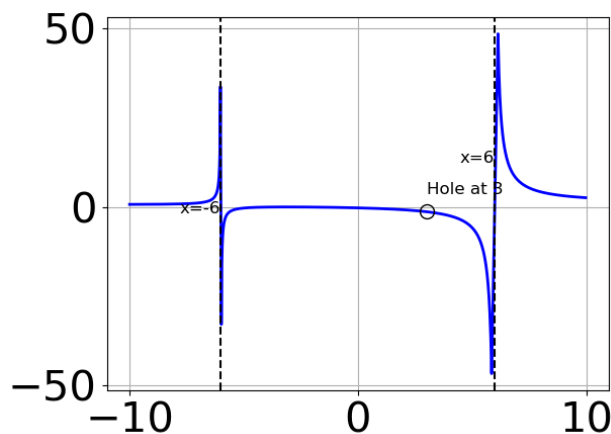
A. $f(x) = \dfrac{x^3 + 9.0x^2 + 26.0x + 24.0}{x^3 - 3.0x^2 - 36.0x + 108.0}$

B. $f(x) = \dfrac{x^3 - 4.0x^2 - 4.0x + 16.0}{x^3 + 3.0x^2 - 36.0x - 108.0}$

C. $f(x) = \dfrac{x^3 - 3.0x^2 - 10.0x + 24.0}{x^3 + 3.0x^2 - 36.0x - 108.0}$

D. $f(x) = \dfrac{x^3 + 3.0x^2 - 10.0x - 24.0}{x^3 - 3.0x^2 - 36.0x + 108.0}$

E. None of the above are possible equations for the graph.

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6. Determine the horizontal and/or oblique asymptotes in the rational function below.

$$f(x) = \frac{4x^2 - 17x - 15}{24x^3 + 14x^2 - 23x - 15}$$

A. Horizontal Asymptote of $y = 0$

B. Horizontal Asymptote of $y = 0.167$

C. Oblique Asymptote of $y = 6x + 29$.

D. Horizontal Asymptote of $y = 0.167$ and Oblique Asymptote of $y = 6x + 29$

E. Horizontal Asymptote at $y = 5.000$

7. Determine the vertical asymptotes and holes in the rational function below.
$$f(x) = \frac{16x^3 - 56x^2 - 47x + 60}{8x^2 - 18x + 9}$$

A. Vertical Asymptote of $x = 1.5$ and hole at $x = 0.75$

B. Holes at $x = 1.5$ and $x = 0.75$ with no vertical asymptotes.

C. Vertical Asymptotes of $x = 1.5$ and $x = -1.25$ with a hole at $x = 0.75$

D. Vertical Asymptotes of $x = 1.5$ and $x = 0.75$ with no holes.

E. Vertical Asymptote of $x = 2.0$ and hole at $x = 0.75$

8. Determine the vertical asymptotes and holes in the rational function below.
$$f(x) = \frac{12x^3 + 37x^2 - 59x - 60}{12x^2 - 5x - 25}$$

A. Holes at $x = -1.25$ and $x = 1.667$ with no vertical asymptotes.

B. Vertical Asymptote of $x = 1.0$ and hole at $x = 1.667$

C. Vertical Asymptote of $x = -1.25$ and hole at $x = 1.667$

D. Vertical Asymptotes of $x = -1.25$ and $x = -0.75$ with a hole at $x = 1.667$

E. Vertical Asymptotes of $x = -1.25$ and $x = 1.667$ with no holes.

9. Determine the vertical asymptotes and holes in the rational function below.
$$f(x) = \frac{8x^3 - 26x^2 - 33x + 36}{6x^2 + 19x + 15}$$

A. Holes at $x = -1.667$ and $x = -1.5$ with no vertical asymptotes.

B. Vertical Asymptote of $x = 1.333$ and hole at $x = -1.5$

C. Vertical Asymptotes of $x = -1.667$ and $x = -1.5$ with no holes.

    D. Vertical Asymptotes of $x = -1.667$ and $x = 0.75$ with a hole at $x = -1.5$

    E. Vertical Asymptote of $x = -1.667$ and hole at $x = -1.5$

10. Determine the horizontal and/or oblique asymptotes in the rational function below.
$$f(x) = \frac{8x^3 - 10x^2 - 9x + 9}{2x^2 + 5x - 12}$$

    A. Horizontal Asymptote of $y = 4.0$

    B. Oblique Asymptote of $y = 4x - 15$.

    C. Horizontal Asymptote at $y = -4.0$

    D. Horizontal Asymptote of $y = -4.0$ and Oblique Asymptote of $y = 4x - 15$

    E. Horizontal Asymptote of $y = 4.0$ and Oblique Asymptote of $y = 4x - 15$